Air conditioning, checking function

Op nbr 87403

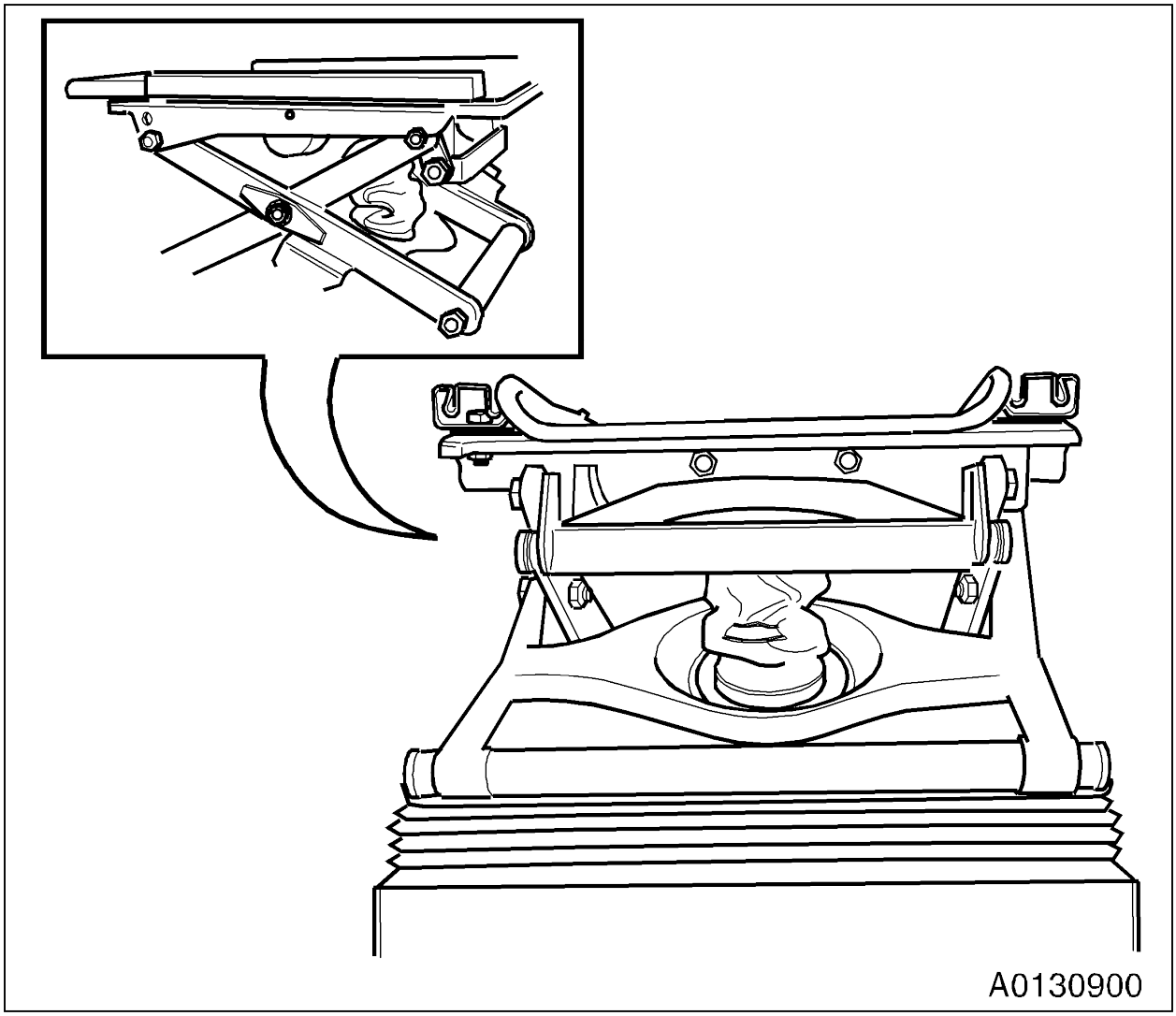
11 666 140 Multimeter
11 666 141 Temperature sensor

1. Close the door and all the windows.
   Start the engine and warm it up to normal operating temperature.

2. Turn the fan switch to position 3 (max. speed) and start the air conditioning.

3. Take a temperature reading in the front left air vent on the instrument panel.

4. Let the engine run at approx. 1800 rpm. The temperature should drop to +4 – +9 ºC (+39 – +48 ºF) with normal ambient temperature (+20 ºC (68 ºF)) and normal humidity.


A0130900

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Air spring for operator’s seat, changing

Op nbr

Removing

1. Remove the operator’s seat including the slide rail.
2. Lay the seat on its back and extend the scissors system.
3. Disconnect the compressed air hose and nipple from the top of the spring.
4. Remove the lower retainer bolt and then remove the air spring.

Mounting

5. Fit a new air spring.

   CAUTION

   Do not tighten the lower retainer bolt completely.
6. Apply Loctite thread locking fluid and tighten down the air nipple.
7. Connect the air hose.
8. Pressurize the air spring, make sure that the air spring is forced over the piston, also on the back.

   CAUTION

   There must be no creases on the air spring.

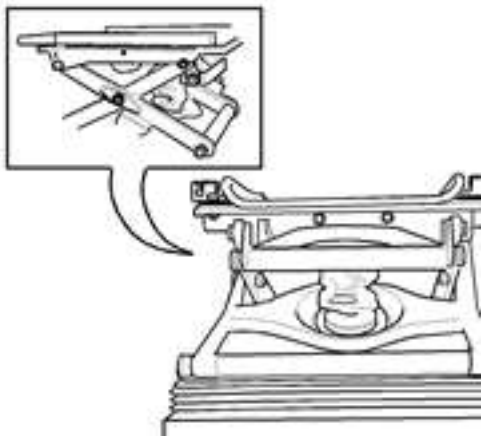


Figure 1
Air spring correctly fitted

9. Tighten the lower retainer bolt under pressure.
10. Drain the seat while compressing it. Secure the seat with the height limiter. Do not extend the scissors without the air being connected.
11. Fit the operator’s seat and release the height limiter.

Automatic timing adjuster (alpha adjuster)

General

The automatic timing adjuster is located between the pump gear in the transmission housing and the injection pump. Its function is to advance injection (from 8 to 14° BTDC) at an engine speed above 2000 rpm.

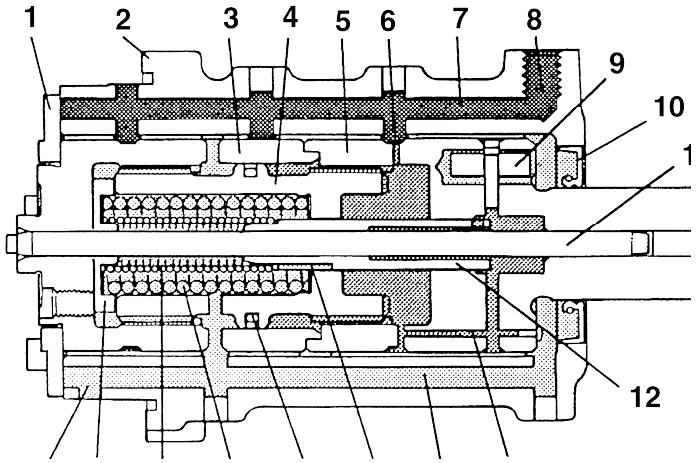
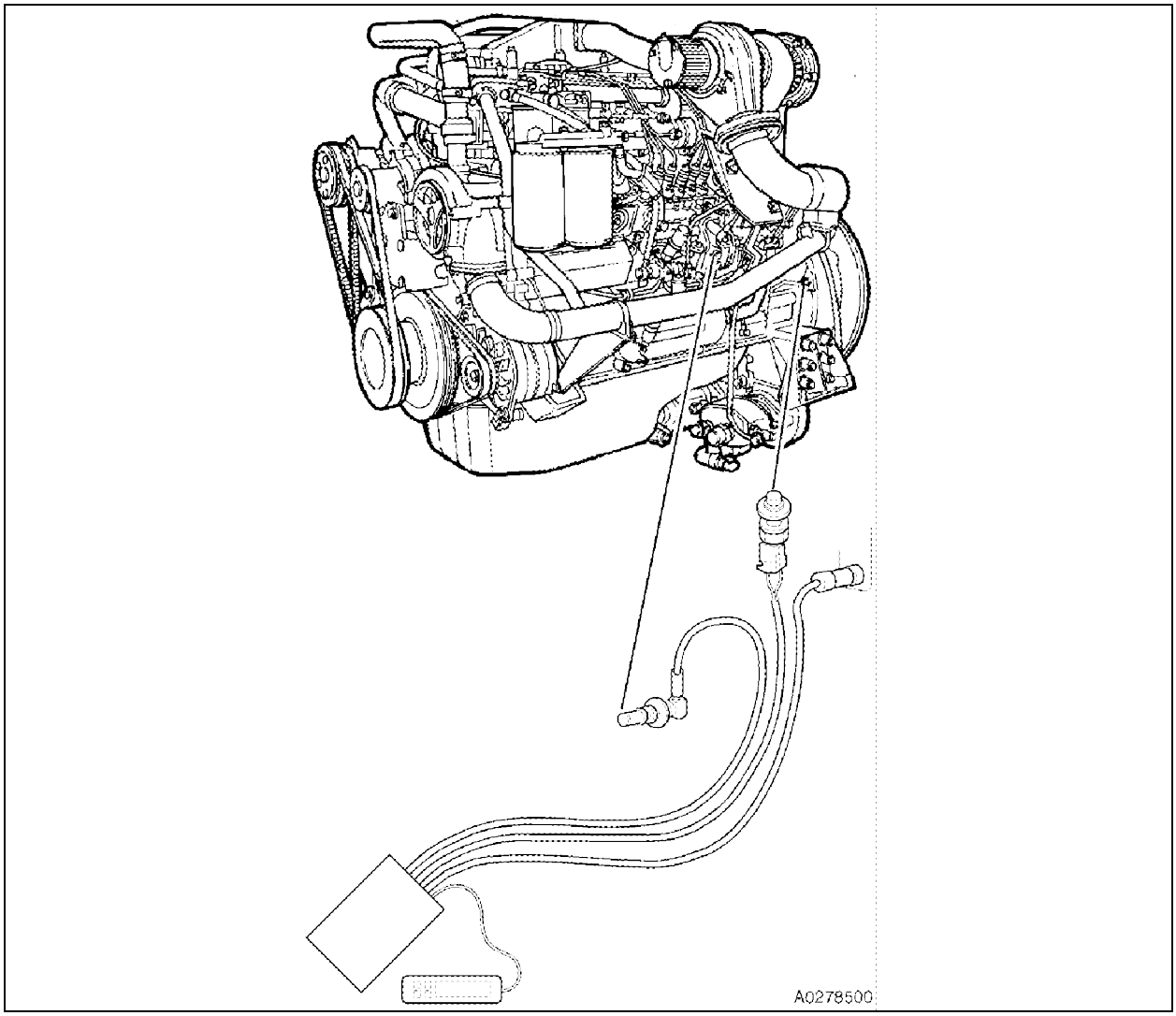


Figure 1
Automatic timing adjuster. Figure shows automatic timing adjuster in fully adjusted position.

1. Thrust bearing (thrust washer)
2. Bearing housing
3. Front flange
4. Piston
5. Rear flange
6. Oil groove
7. Pressure oil passage
8. Oil inlet
9. Centrifugal weight (4 pcs)
10. Rear seal
11. Torsion shaft
12. Control sleeve
13. Oil groove
14. Return oil passage
15. Groove, control sleeve (4 pcs)
16. Piston seal
17. Compression spring, piston
18. Compression spring, control sleeve
19. Adjusting sleeve (spring seat)
20. Return oil outlet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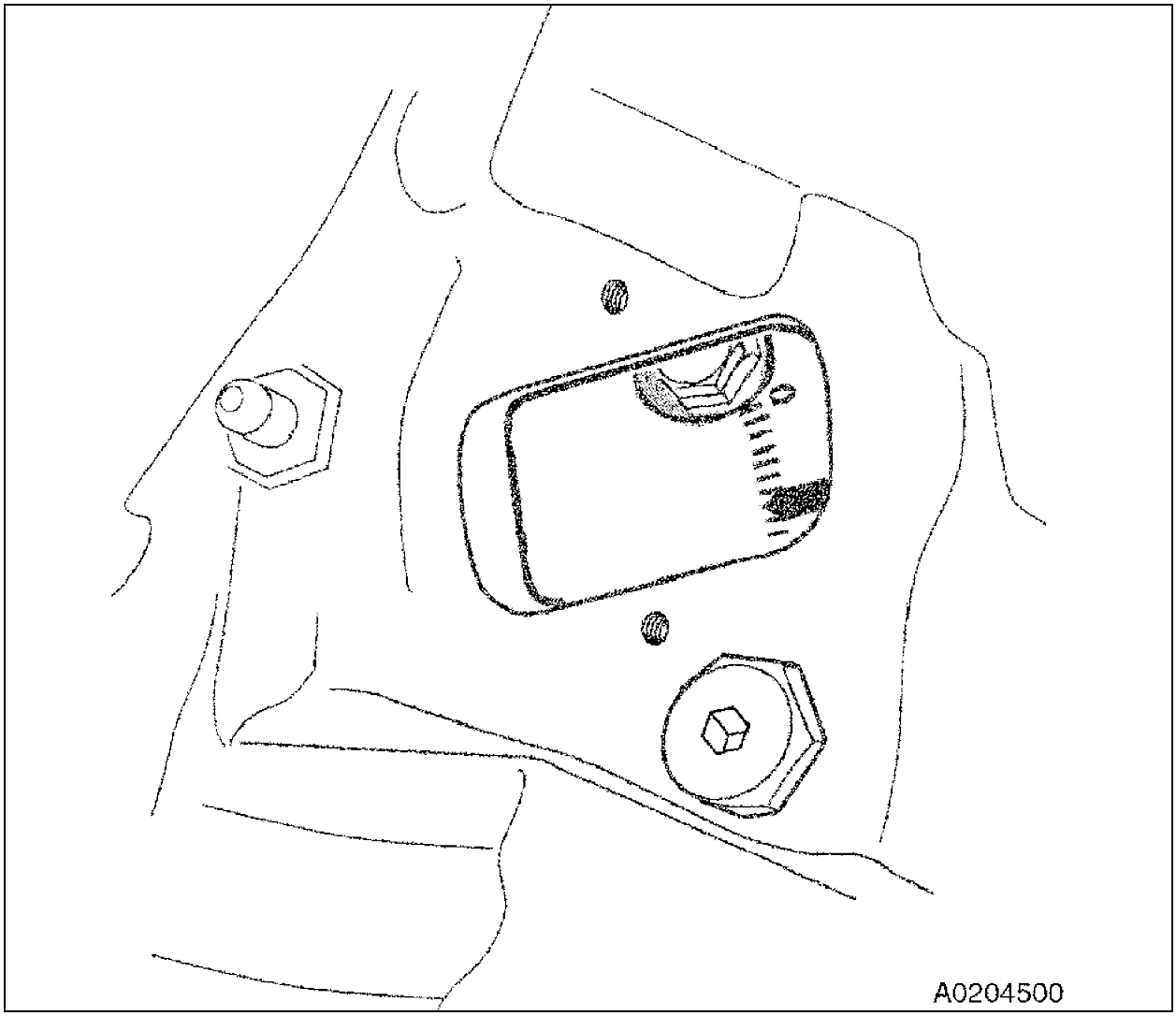
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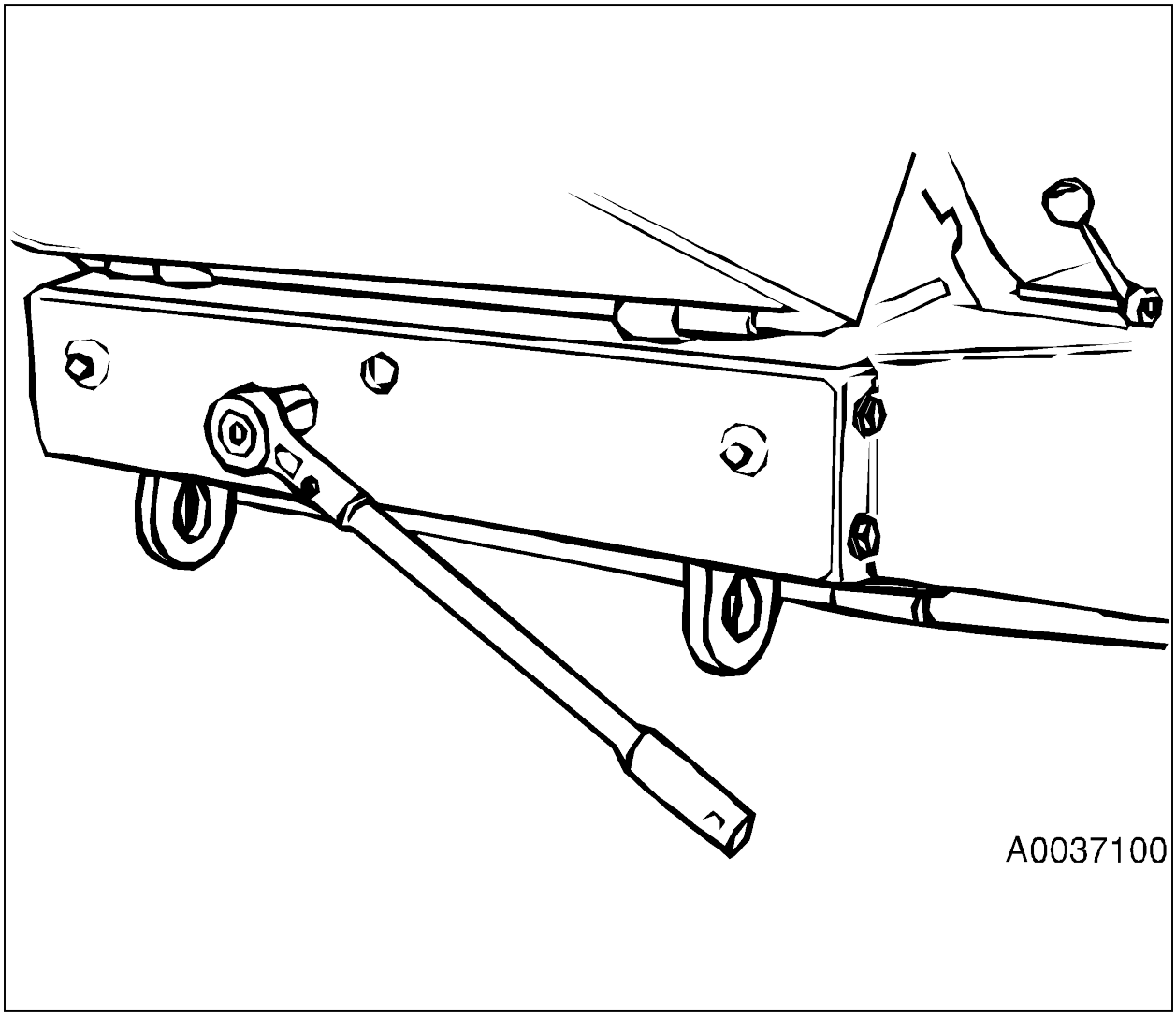
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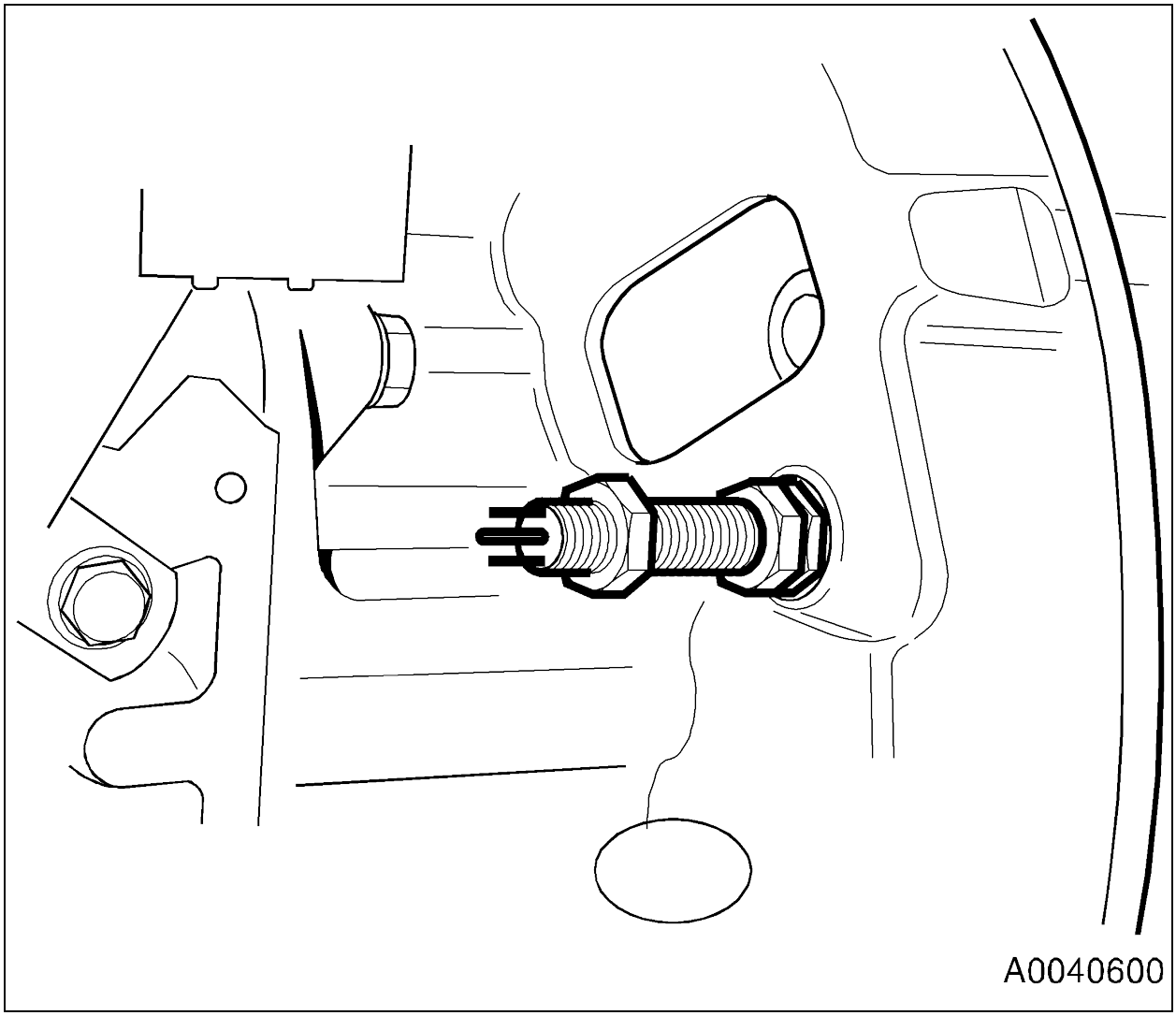
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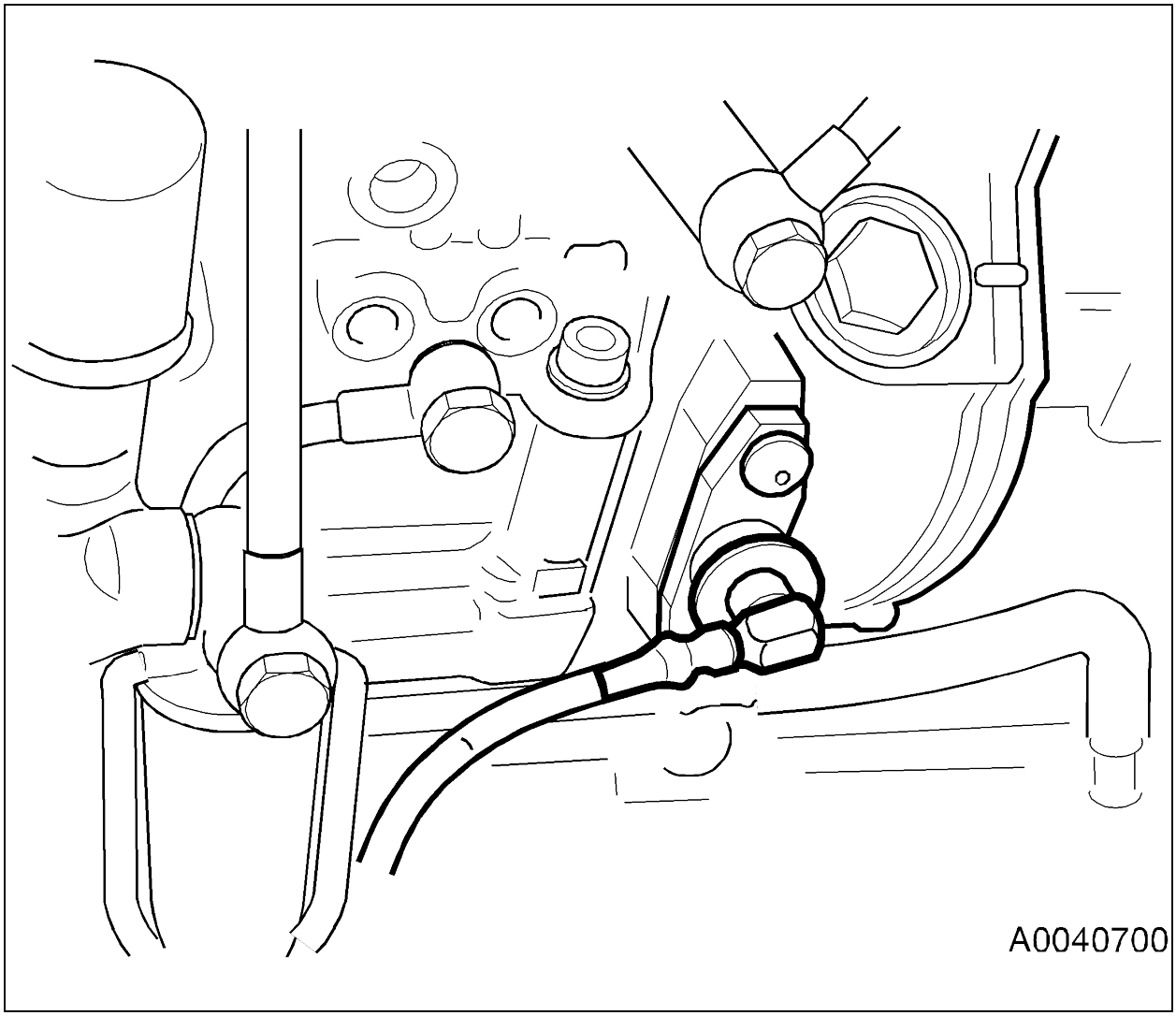
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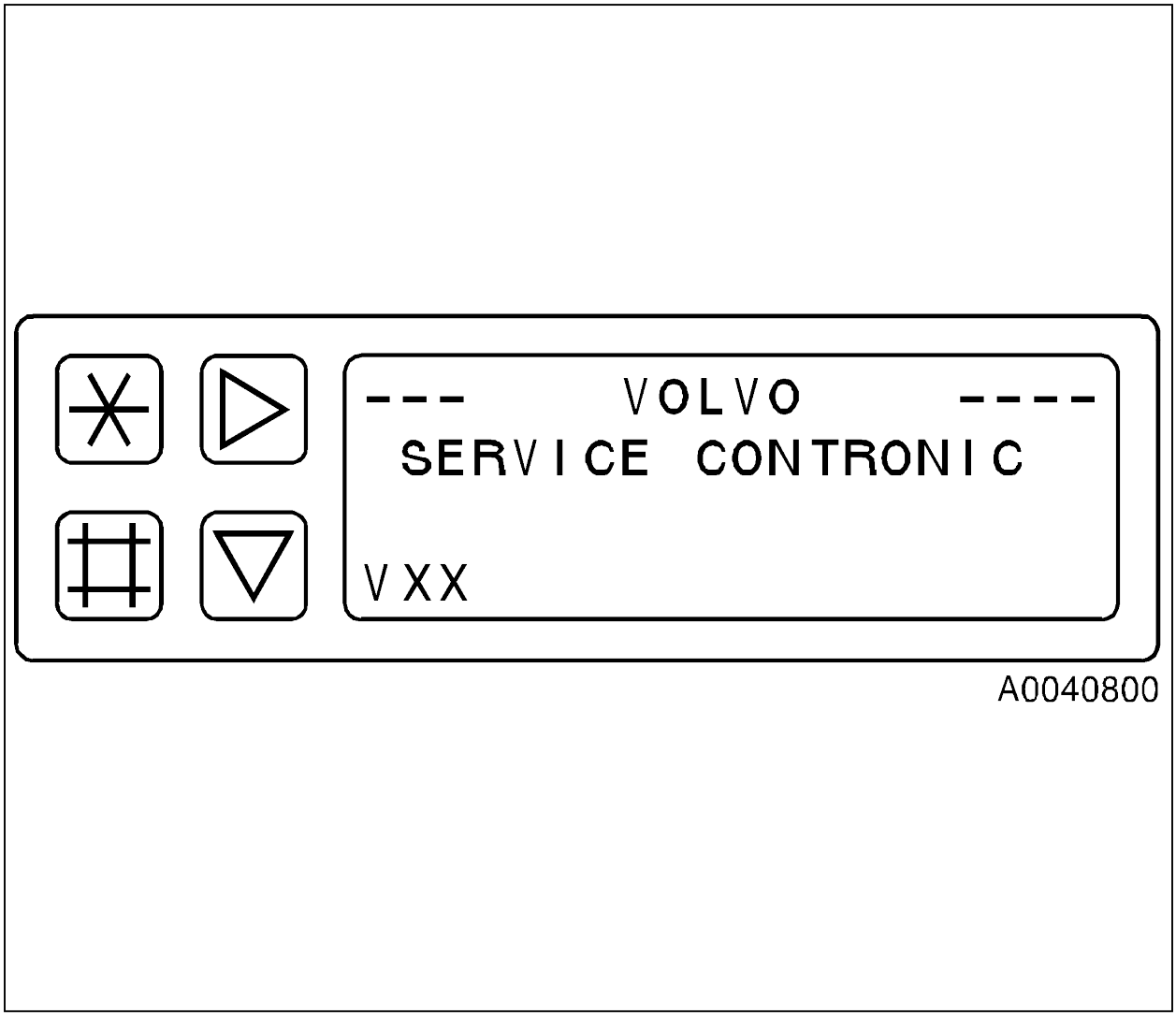

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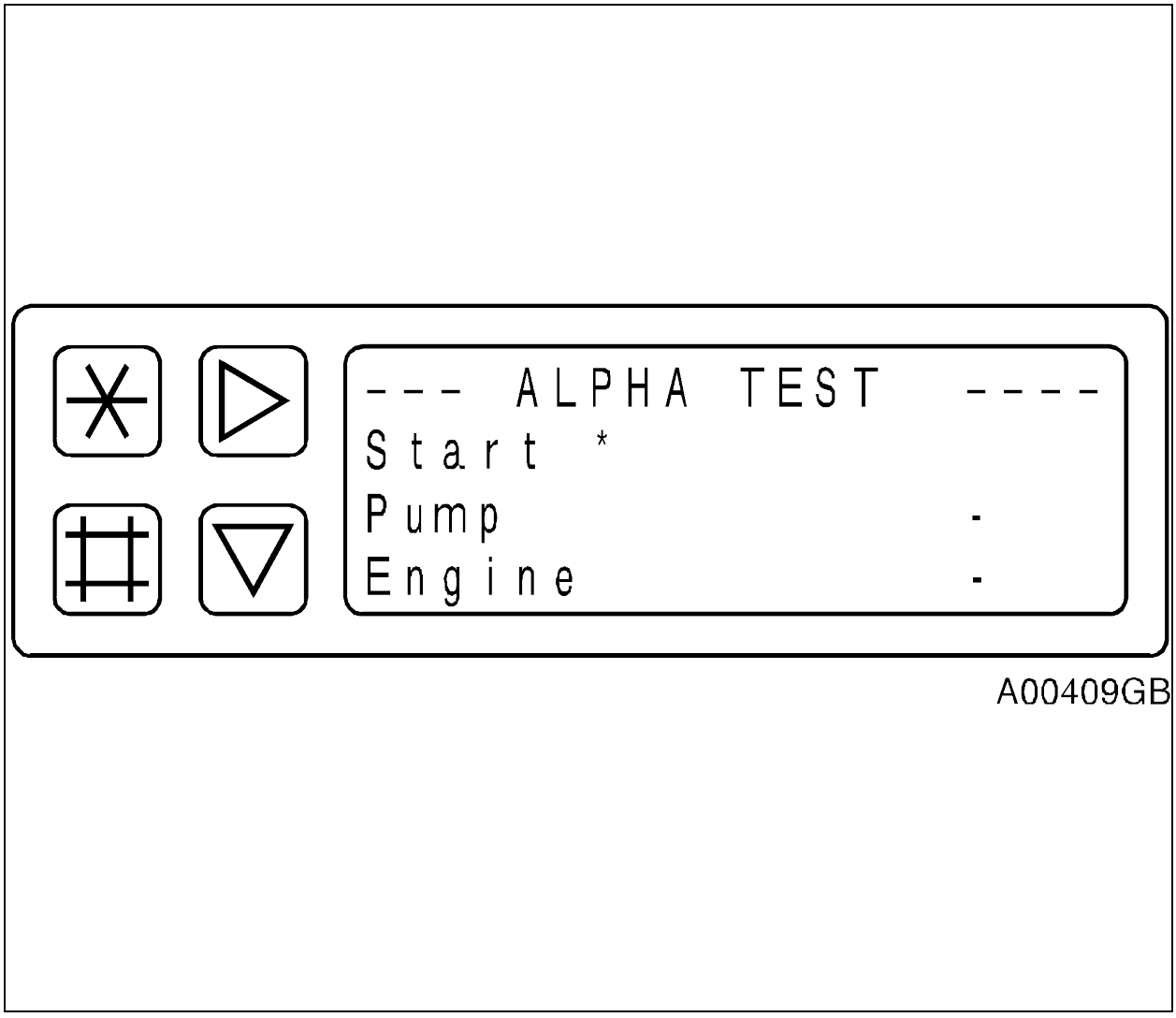

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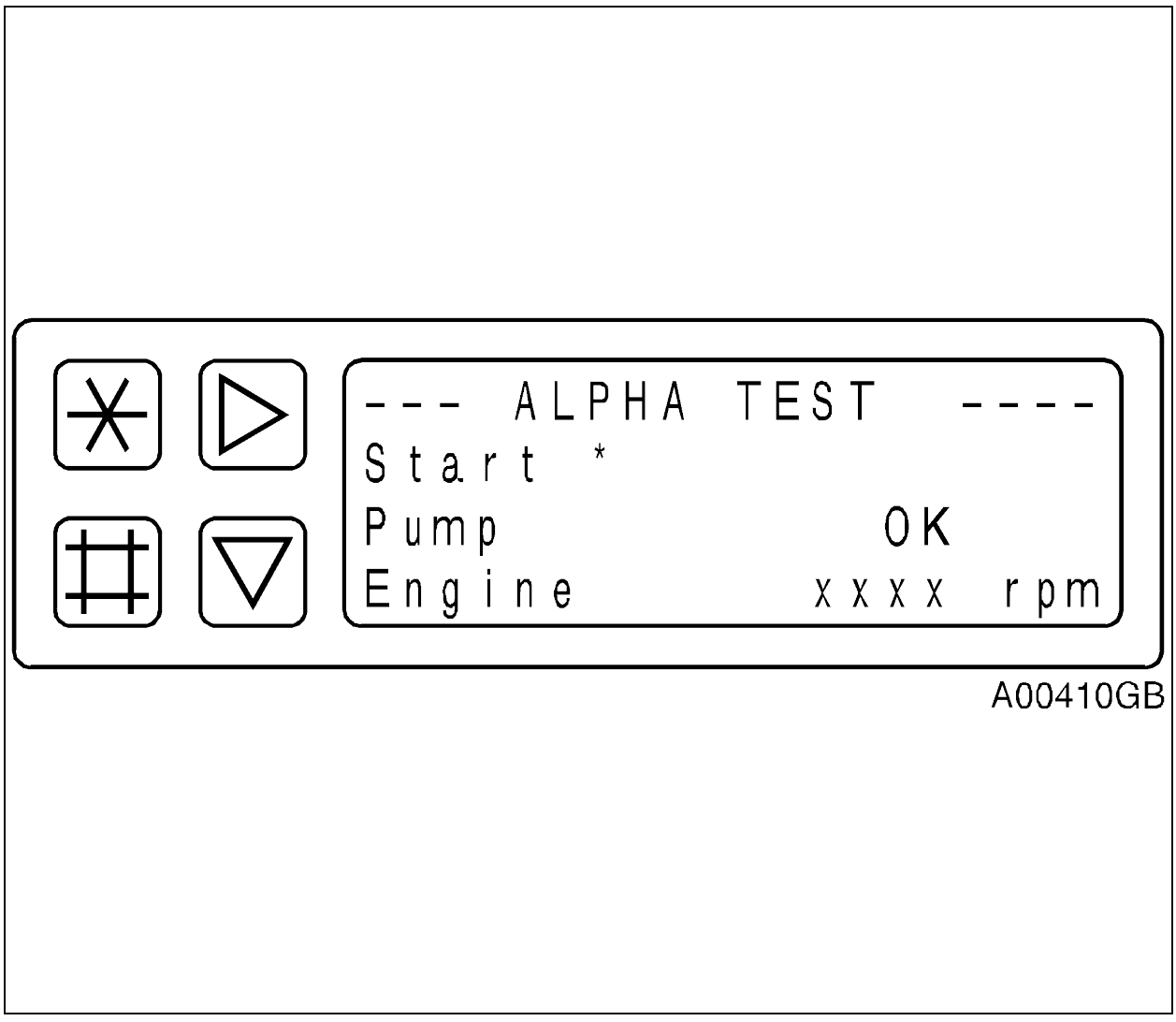

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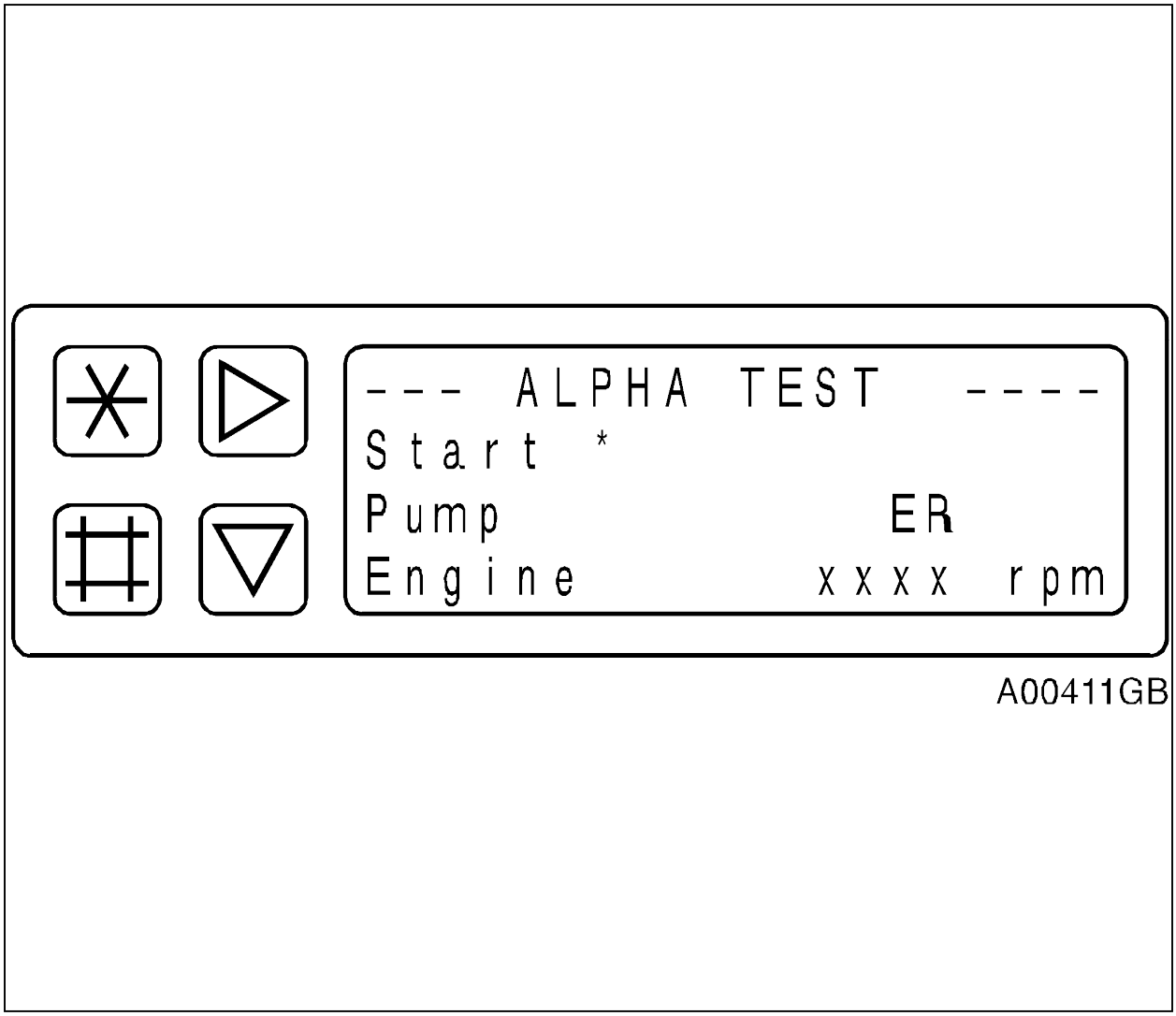

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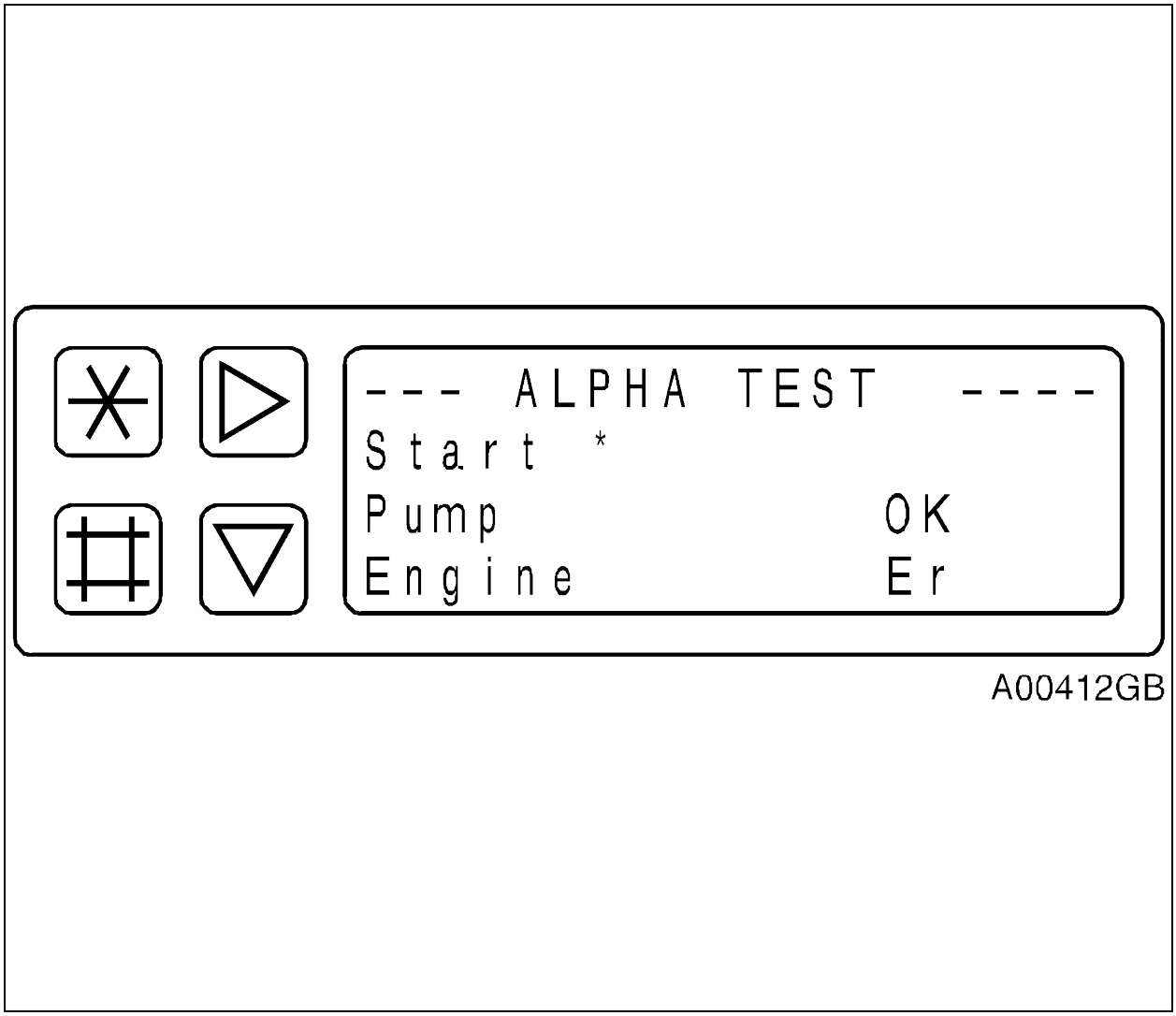
--- ALPHA TEST ----
Start *
Pump OK
Engine Er
A00412GB

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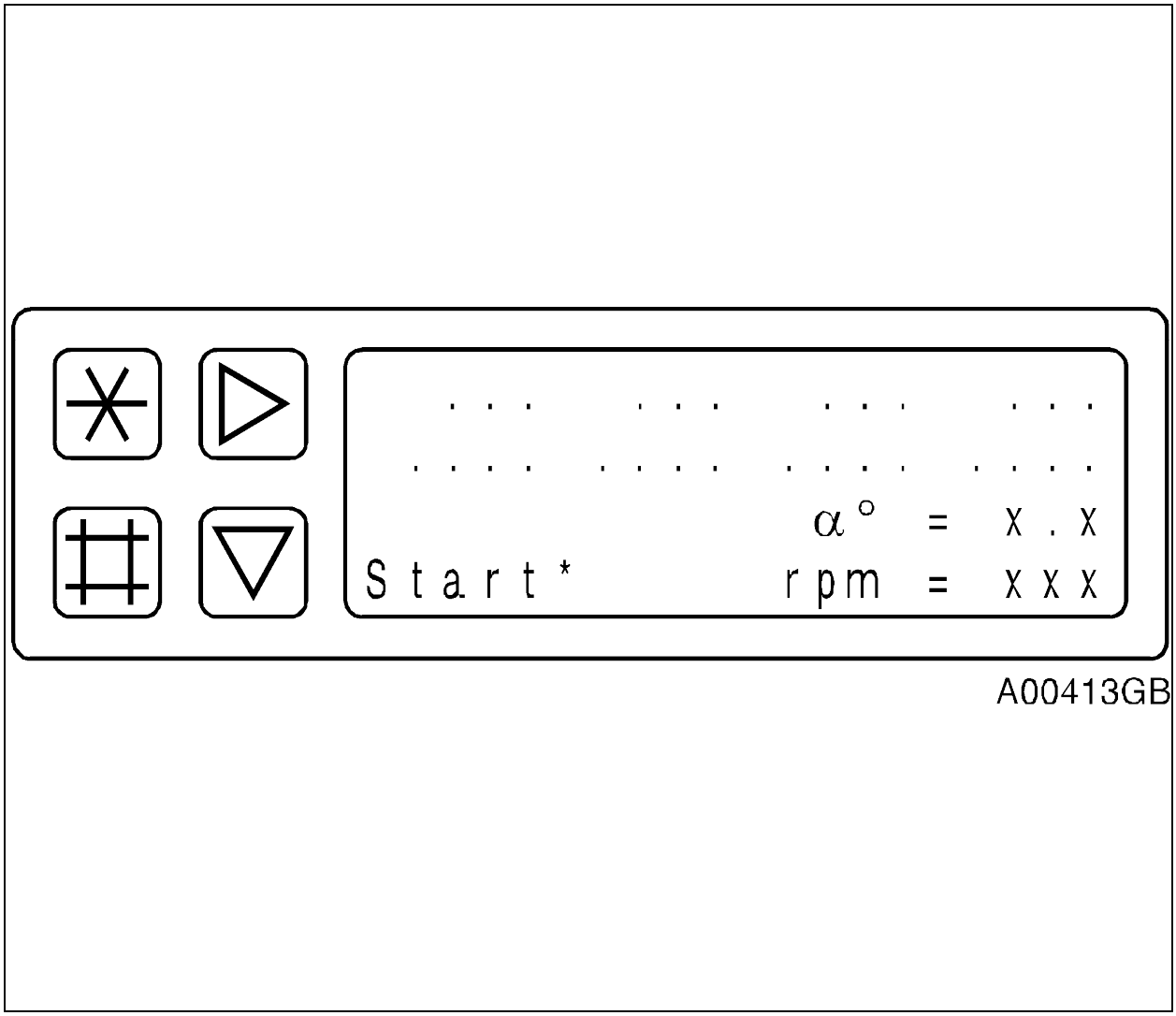
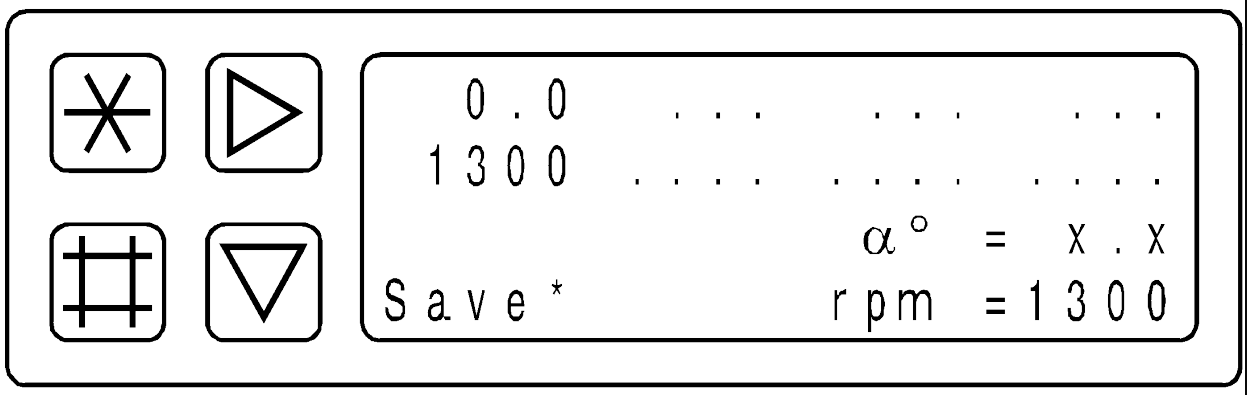

Start*
α° = X.X
rpm = XXX
A00413GB



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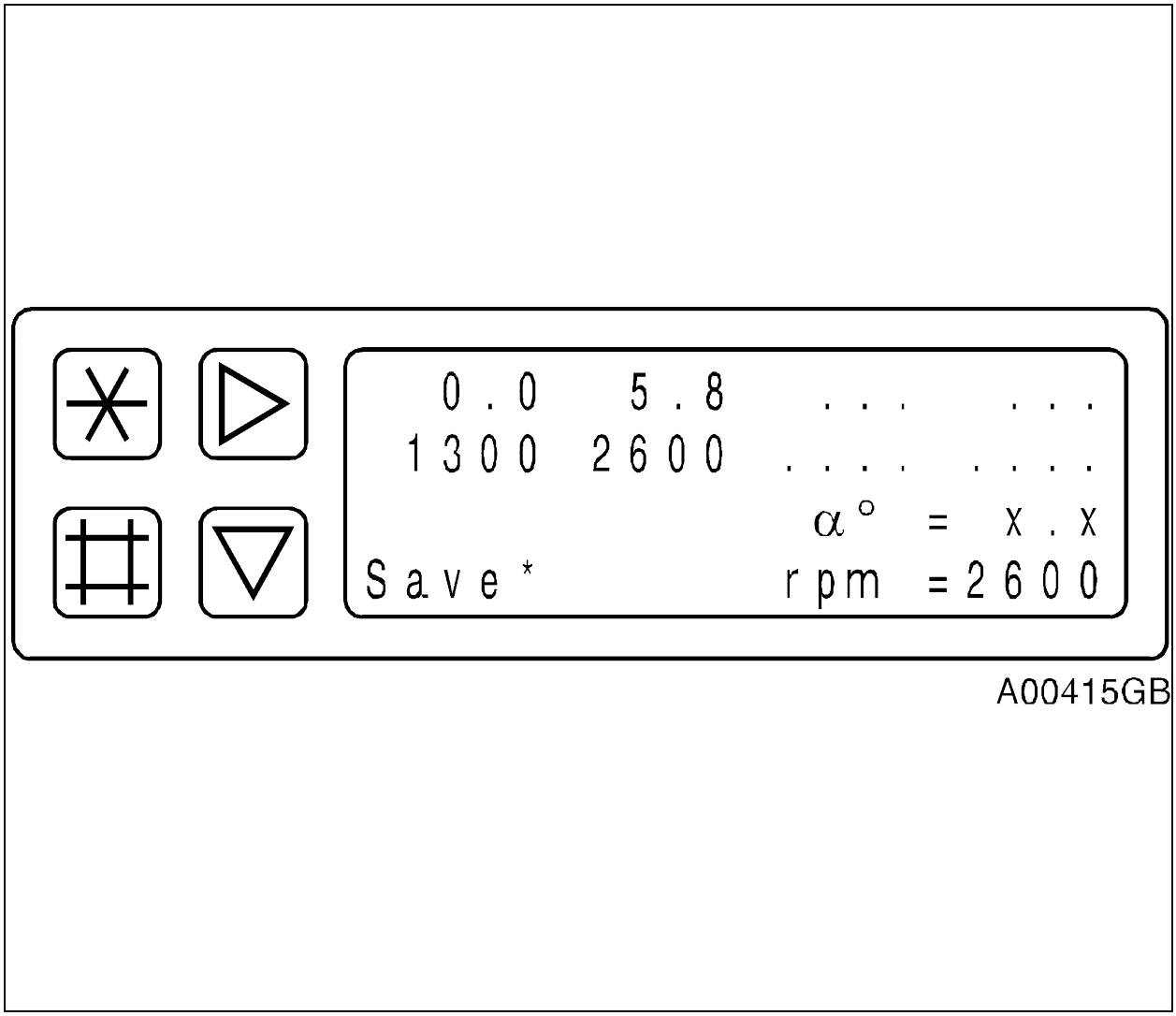
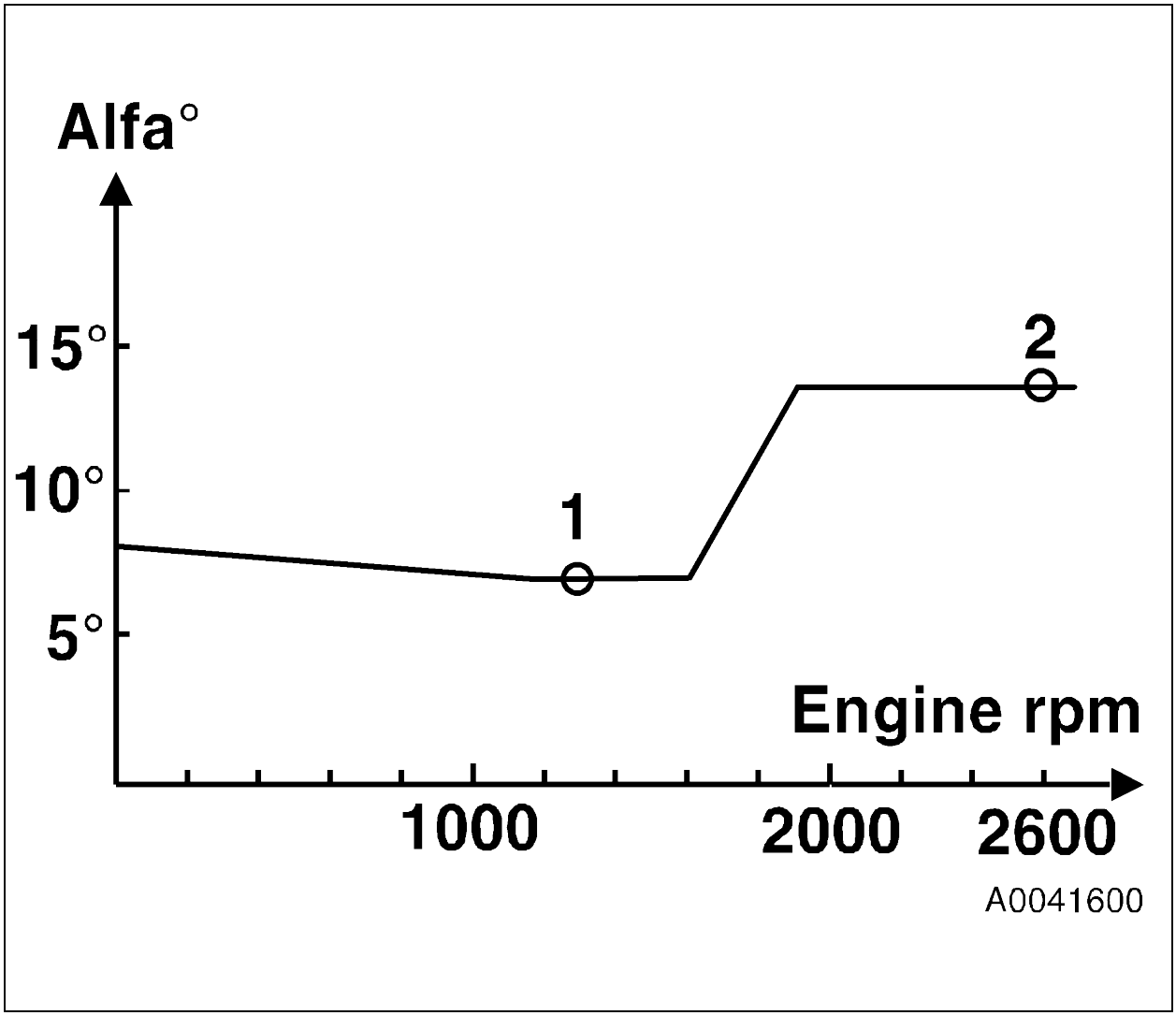
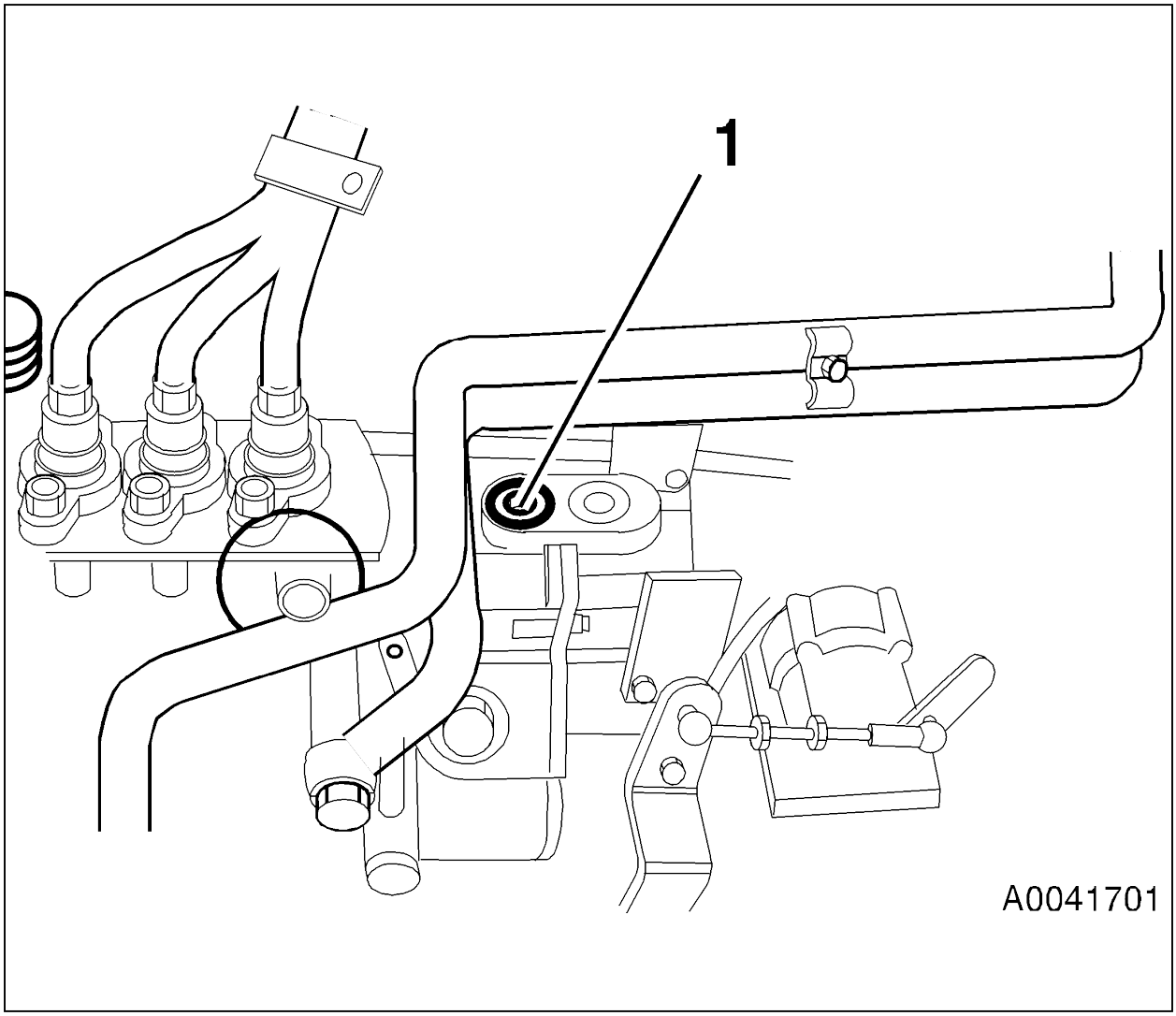

0.0 5.8 . . . . . .
1300 2600 . . . . . .
α° = x.x
Save* rpm =2600
A00415GB


Alfa°
15°
10°
5°
1
2
Engine rpm
1000
2000
2600
A0041600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Automatic timing adjuster, checking

Op nbr 23631

999 3721 Service display unit
11 668 003 Measuring instrument

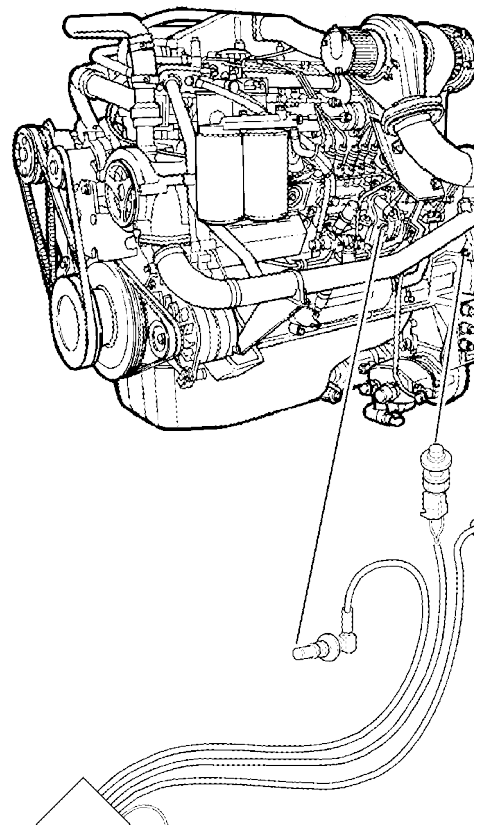


Figure 1

Measuring instrument 11 668 003 consists of an electronic unit, cabling and two sensors. The sensors sense the difference between a hole in the flywheel, showing when cylinder 1 passes top dead centre (TDC), and a cam on the pump shaft which indicates the position when fuel injection begins on cylinder no. 1. Read off on service display unit 999 3721.

1. Open the engine hood. Remove the cover over the inspection hole and the plug on the flywheel housing.

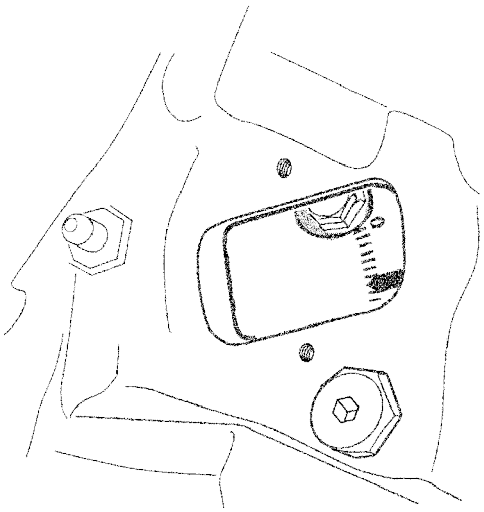


Figure 2

2. Check if the degree markings on the flywheel are visible in the hole. If no marking is visible, then the sensor can be fitted in the threaded hole where the plug was installed. If markings are visible, the crankshaft is rotated a quarter of a full turn. This is

so that the sensor does not end up in the measuring hole on the flywheel when it is adjusted.

WARNING

Do not turn the crankshaft with a short extension and do not keep arms under the engine hood catch. The catch may release and the arm is then trapped under the hood.

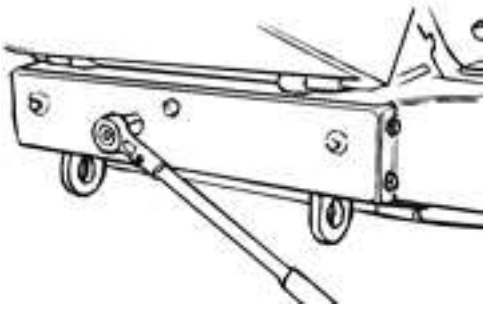


Figure 3

Rotate the crankshaft by using:
Ratchet handle with 3/4" drive
Extension
Socket 13/16"

3. Screw in the threaded bushing in the flywheel housing. Then, screw in the sensor until it reaches the flywheel. Only screw in the sensor by hand until it just reaches the flywheel. Then, back off the sensor one and a half (1) turns and lock the sensor with the lock nut.

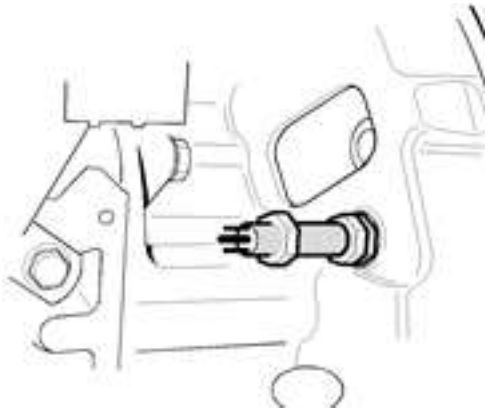


Figure 4

4. Fit the sensor in the fuel injection pump regulator housing. Be prepared with a container to collect the oil that drains (approx. 0.3 litres (0.08 US gal)). Try to minimize the amount of oil that drains by quickly fitting the sensor when the plug is removed.

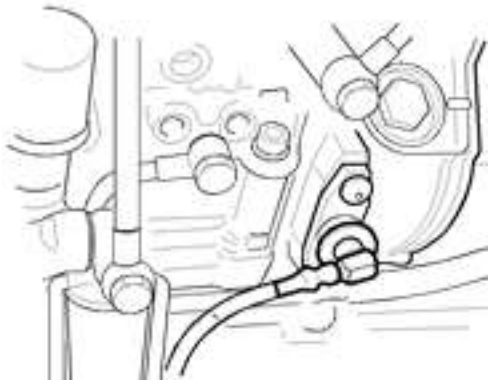


Figure 5

5. First, connect sensors and the service display unit with the electronic unit. Then plug in to the power supply in the cigarette

lighter.

6. The start display is shown for 4 seconds.

Figure 6

7. Then, the adjoining display is shown.

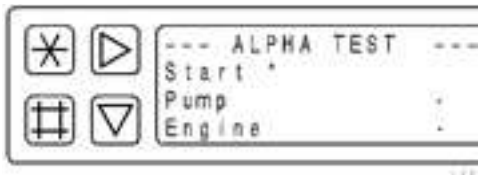


Figure 7

8. Start the engine. If the sensors are operating correctly, the figure is shown. Proceed to step 11.

Figure 8

9. If fuel injection pump sensor is not operational, the adjoining figure is shown. Make sure that the sensor is screwed in all the way.

Figure 9

10. If the sensor in the flywheel housing is not functioning or if the sensor is not screwed out one and a half (1) turns from the flywheel, the adjoining figure is shown.
Check the connector as well.

Figure 10

11. If the sensors are functioning, press .
The adjoining figure is shown.

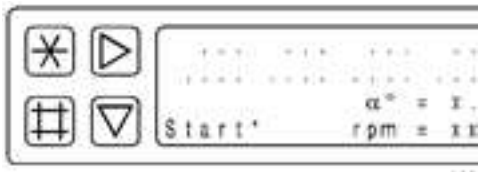


Figure 11

12. Increase engine speed to 1300 rpm. Press ✳ to set the zero point. See adjoining figures.

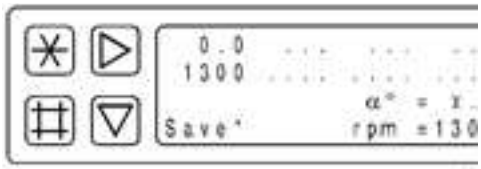


Figure 12

Figure 13

13. Increase engine speed to 2600 rpm. Press ✳ and see adjoining figures.

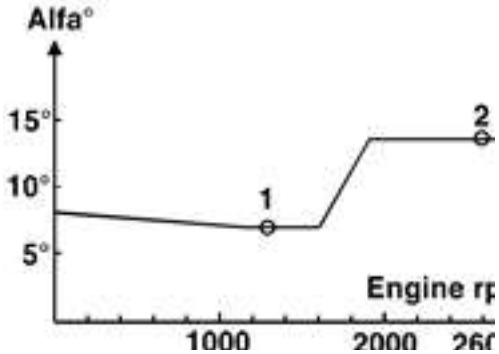


Figure 14

Maximum angle adjustment should now be complete.
The adjustment should be 6°±1°.

NOTE!
After measuring, the alpha°-value may show 0.5°–1.5° at low idle.

This is due to clearance in the fuel pump gear drive.

14. Press ✳ three times to start a new series of measurements.
15. Restore to operating condition by unplugging the power supply, then remove the electronic unit, service display unit and the two sensors. Refit the plugs and the cover over the inspection hole.
16. Remove the plug and top up with engine oil in the regulator housing. Top up with the same amount of oil that drained when the plug for the measuring instrument sensor was removed.

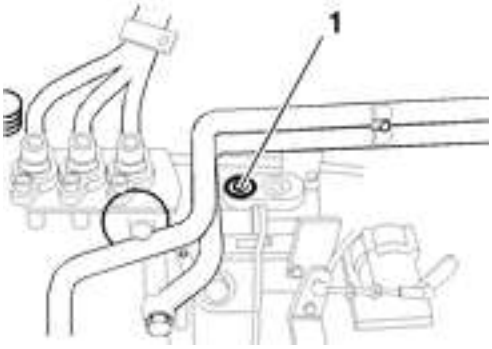
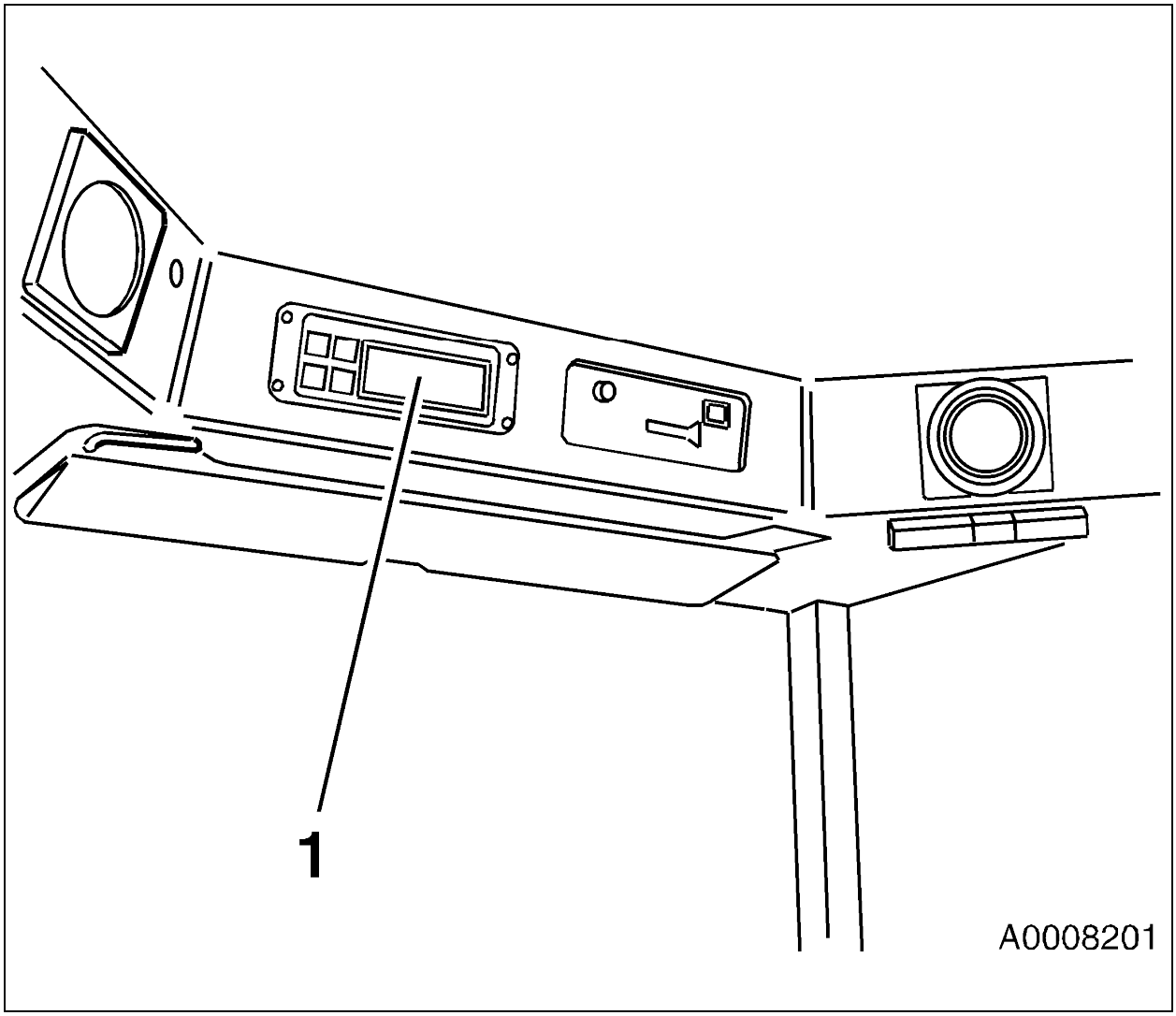


Figure 15

1. Plug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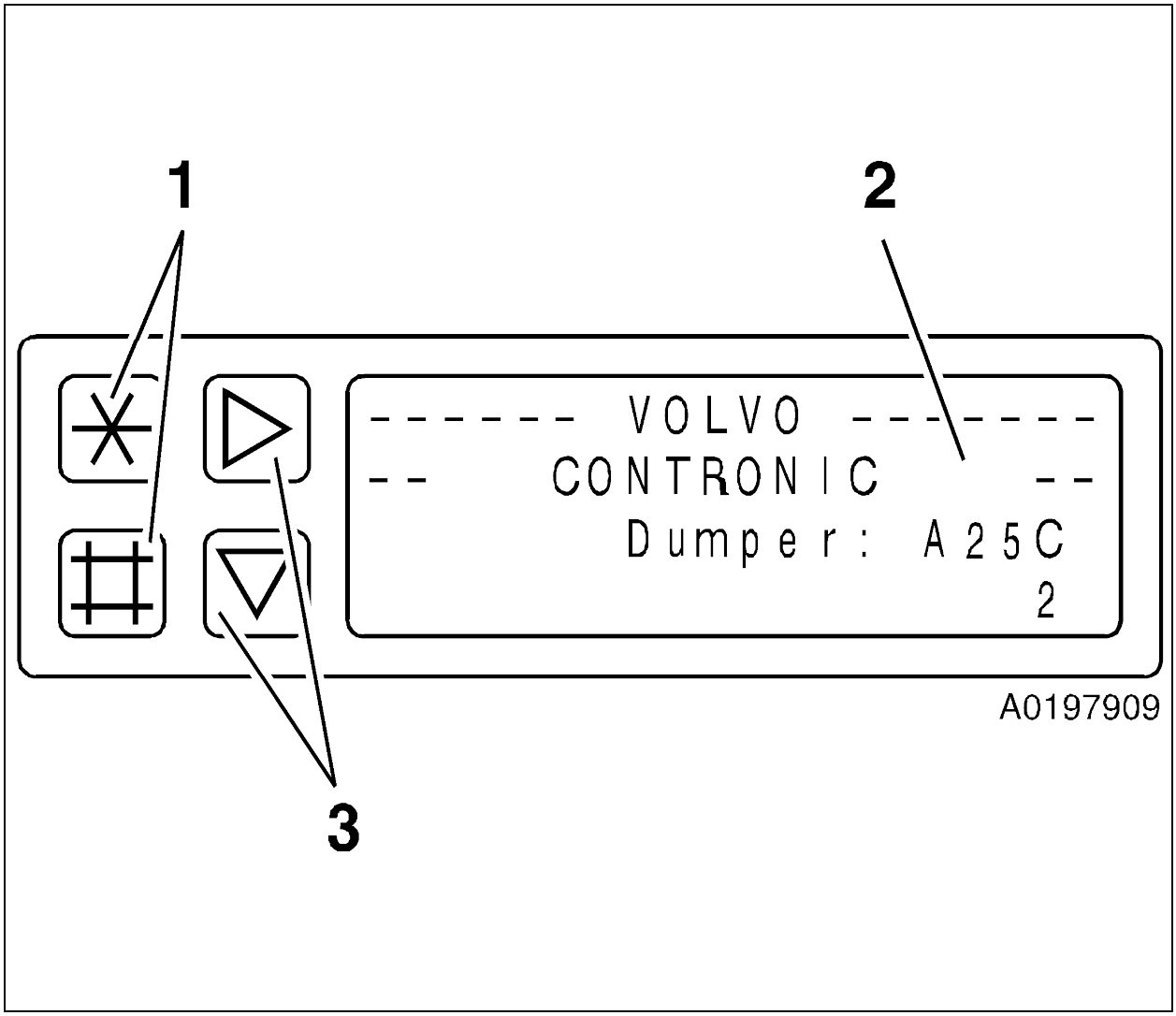
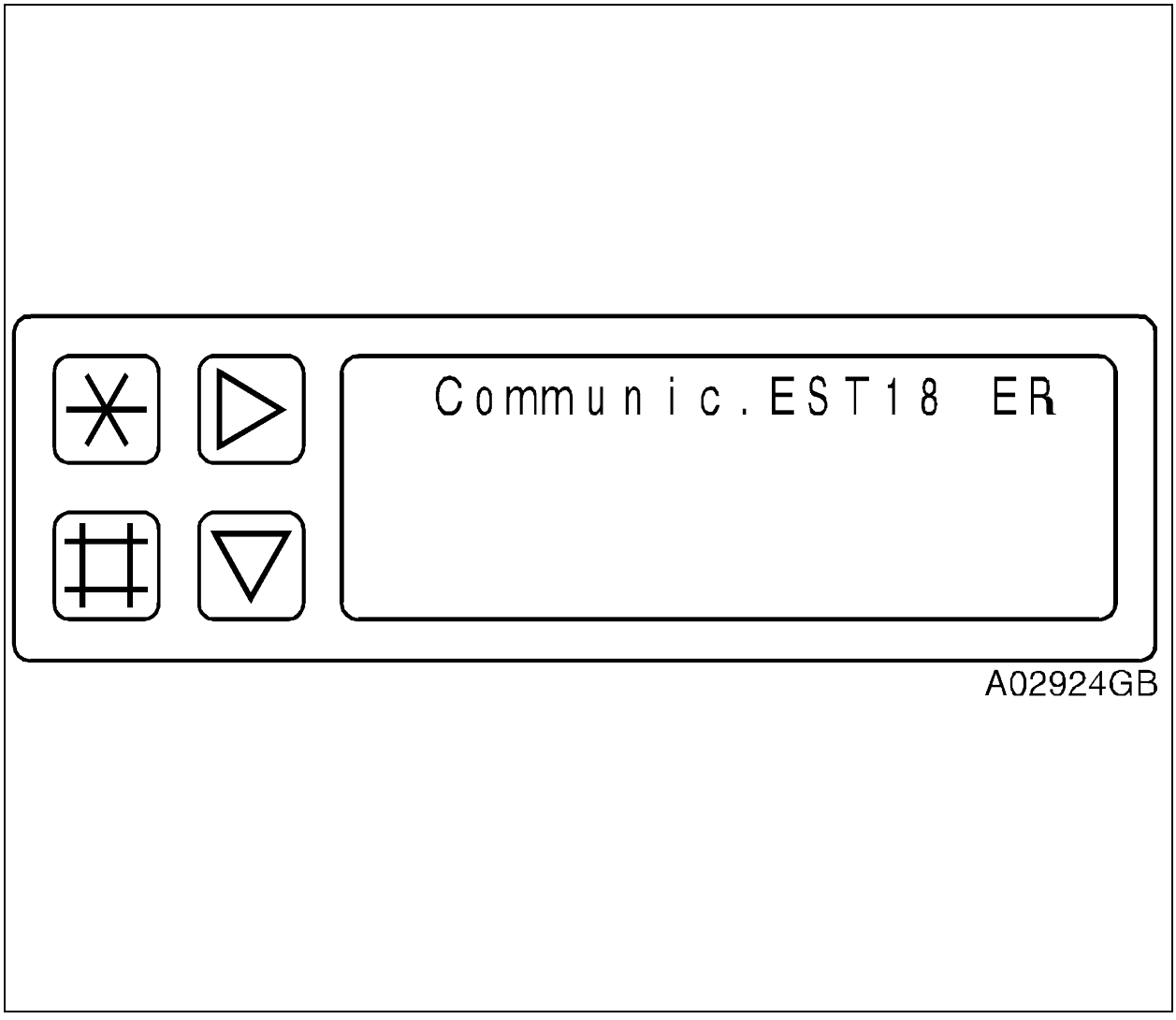

1
2
3
------ VOLVO ------
-- CONTRONIC --
Dumper: A25C
2
A0197909



A02924GB

Contronic Information Display Unit

The Information display unit provides the operator with improved and easy to understand information about the functions monitored by the ECU. The display unit has four lines of information. The top line shows the chosen display heading and any warning/error messages. The other lines are used to display or input information.

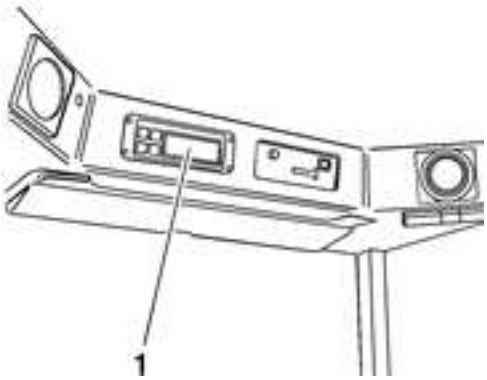


Figure 1
The information display unit is located in the front overhead roof panel in the cab

1. Information display unit

The displays are divided into six function groups

1. Initial display and settings
2. General operating information, cycle counter and service interval
3. Date and time
4. Engine
5. Electrical system
6. Transmission

The figures are numbered as "**Figure x.y"** where x represents function group and y represents the sequential number in the group. See [Invalid linktarget] respective [Invalid linktarget].

The information display unit has four keys to enable moving between the various menus and to affect the displayed information.

Figure 2

1. Activating keys
2. Display box
3. Shift keys

The top activating key is used to advance to the various displays.

The bottom activating key is used to move the cursor.

The top shift key brings up the first display in the next function group.

The bottom shift key brings up the next display within the function group.
When the last display in the function group is displayed, pressing the key will bring up the first display within the function group.

The information display unit is connected to the ECU.

Information display unit menus

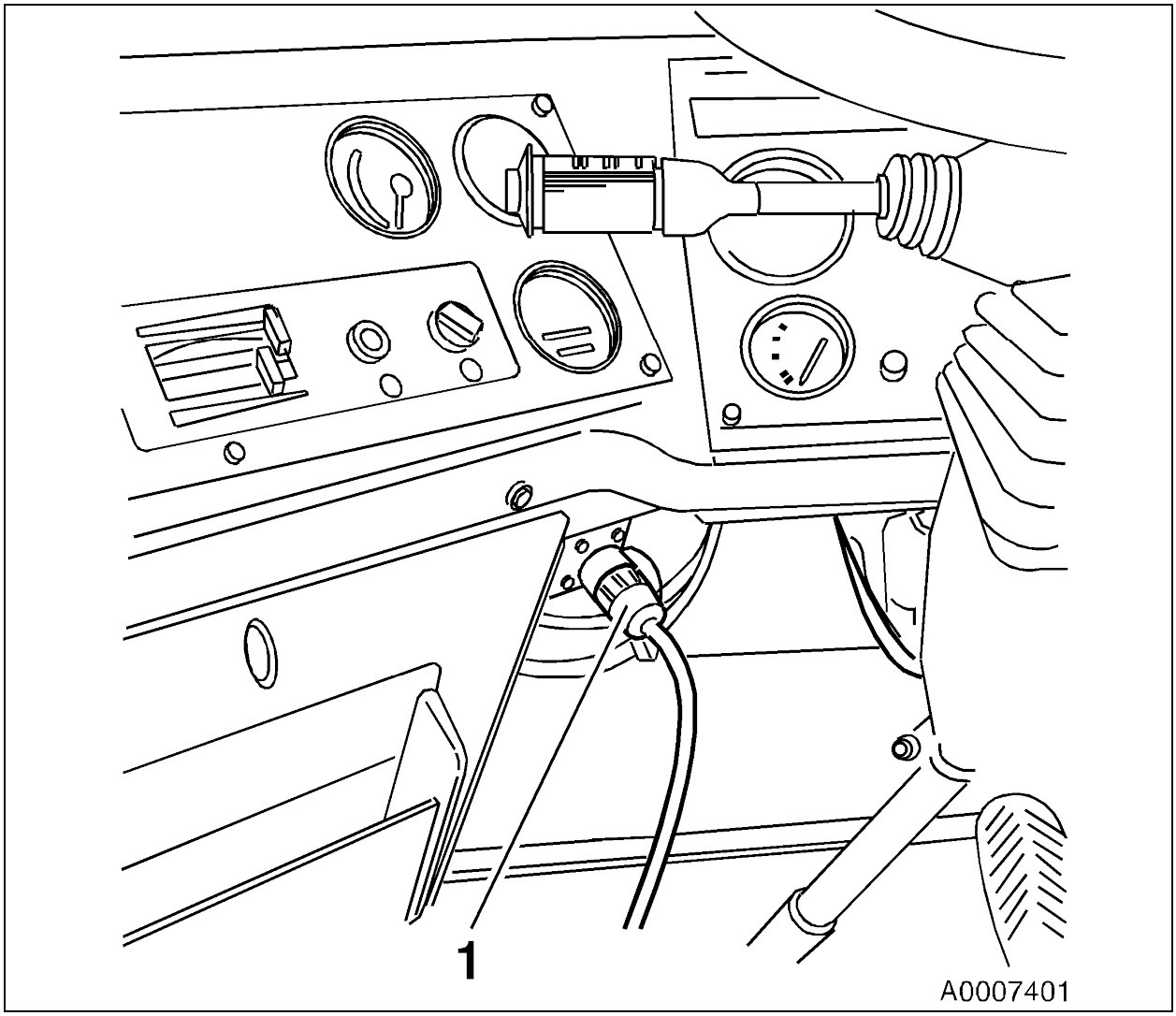
When the ignition key is turned to position I, the ECU and information display unit are activated. The display ”lights up” with the same display as when the ignition key was turned to the 0 position. The top line will alternate between the display heading and a warning message until the ECU has received signals from all connected sensors. The warning/error message will then disappear unless a failure or malfunction does exist.

Figure 3

CAUTION

If the display unit only lights up but does not show a figure when the ignition key is tuned to position I, press both shift keys and at the same time.

When the machine is operated, the (-) character may be displayed at times where values are normally shown. The reason is that ECU 2 is waiting for information from EST 18.


1
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